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INFORMATION REPORT

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SUBJECT Metal Substitute--"Lignophole"

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Method of Production

2. Sawn birch or pine logs are cut into sheets 3 mm. to 0.2 mm. thick. The sheets are dried, covered with glue resins, stacked and pressed while hot. The resins are polymerized, becoming very hard, infusible and waterproof.

3. Properties of the material can be varied by using different kinds of wood or changing the degree of pressure and the character of chemical treatment.

"Lignophole" Bearings

4. Extensive laboratory experiments and experimental use in industry reportedly have demonstrated that "Lignophole" can be used in place of non-ferrous metals to produce bearings which are used in vital sections of blooming mills and coal mining machinery. "Lignophole" bearings reportedly are superior to those of bronze or babbitt in that they are more durable, more economical in operation, have a good coefficient of friction and protect the spindles from corrosion.

Pinions, Rollers, Bushings and Pulleys

5. "Lignophole" pinions, rollers, bushings and pulleys can be turned from blocks on ordinary metal-working machines or they can be made by pressing. The impregnated wooden sheets are reduced to a powder from which the articles are stamped.

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Autoclave Treatment of "Lignophole"

6. The Institute reportedly has developed also a method of pressing "lignophole" in autoclaves, by means of which articles of the most intricate shapes can be produced quickly and cheaply:

(a) The sheets are placed on a mold and put into a hermetically sealed rubber bag. The rubber, by suction, presses the sheets tightly against the mold.

(b) The rubber bag and its contents are placed in an autoclave and pressed.

7. Skis, parts of furniture, radio cases and other containers are made by the autoclave process. Soviet experts have approved even vital parts of aircraft such as propellers, longerons and other fuselage parts.

Other Materials Combined with "Lignophole"

8. When other materials are combined with "lignophole" their properties are improved. Wire nets, metal sheets, textiles and rubber become more durable when sandwiched between sheets of "lignophole." "Lignophole" with a pressed-in steel net can be used for automobile bodies and the sheathing for cutters.

9. "Lignophole" combined with metal sheets can be used for pipes that carry water, gas and oil. This combination also can be employed in bridge construction and in radio masts.

"Lignophole" Treated with Phenol Resin

10. When "lignophole" is impregnated with phenol resin it acquires resistance to chemicals and becomes a non-conductor of electricity. These properties make it suitable for chemiclal and electrical equipment.

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